

COURSEWORK BRIEF:

Module Code:	MANG1041	Assessment:	Individual Coursework	Weighting:	80%
Module Title:	Business Analytics Programming I: SAS Base Language				
Module Leader:	Kasia Bijak				
Submission Due Date: @ 16:00	Friday 16th May 2025			Word Count:	PART 1: N/A PART 2: 500
Method of Submission:	Electronic via Blackboard Turnitin ONLY (Please ensure that your name does not appear on any part of your work)				

Any submitted after 16:00 on the deadline date will be subject to the standard University late penalties (see below), unless an extension has been granted.

Days Late:	Mark:
1	(final agreed mark) * 0.9
2	(final agreed mark) * 0.8
3	(final agreed mark) * 0.7
4	(final agreed mark) * 0.6
5	(final agreed mark) * 0.5
More than 5	0

This assessment relates to the following module learning outcomes:

<i>A. Knowledge and Understanding</i>	A1. Key computer programming concepts for managing and analysing 'big data'; A2. The SAS Base language and how it is used to manage, analyse and report data.
<i>B. Subject Specific Intellectual and Research Skills</i>	B1. Read structured and unstructured data stored in popular formats such as excel worksheets, text tables into SAS; B2. Store data in SAS libraries; B3. Manipulate, analyse, visualize and report data using SAS.
<i>C. Transferable and Generic Skills</i>	C1. Use your analytic skills in problem solving; C2. Communicate technical ideas to non-specialist managers.

Coursework Brief:

This coursework consists of two parts. Part 1 is data analysis using SAS and Part 2 is a short report (marks in brackets). Please copy the syntax of your SAS program (Part 1) and paste it into a Word document including your report (Part 2) so that you submit your coursework as a single Word document to Blackboard. Alternatively, you are welcome to use any other word processor, e.g. Pages, and save and then submit your document as a single pdf file.

PART 1: DATA ANALYSIS USING SAS (80 marks)

In this assignment, you will analyse data on online reviews from 21 Las Vegas hotels extracted from TripAdvisor and obtained from the UCI Machine Learning Repository website: <http://archive.ics.uci.edu/ml/datasets/Las+Vegas+Strip> (Moro, S., Rita, P., & Coelho, J. (2017). Stripping customers' feedback on hotels through data mining: The case of Las Vegas Strip. *Tourism Management Perspectives*, 23, 41-52). There is no need to download data from the website. Please use the file Las_Vegas.xlsx which is available on Blackboard. Refer to the paper for more information about the data set and the available variables: <http://www.sciencedirect.com/science/article/pii/S2211973617300387>. You will analyse the data and in particular, you will develop a linear regression model. Below there are guidelines that you will need to follow. Please read them carefully.

Guidelines

- Write a SAS program that performs the tasks listed below and, based on the obtained results, answer the related questions.
- Comment your program liberally so that it is clear what the aim of your program is, what each data step/procedure does and which task it addresses.
- Answer the questions using comments in the program, directly after the procedures which have produced the relevant results.
- Only use the WORK library and do not use any other SAS libraries.

Tasks and questions (marks in brackets)

- 1) Import the data from Las_Vegas.xlsx to SAS (3)
- 2) Produce the frequencies of all values of user_country (from most frequent to least frequent) (2)
- 3) Where do most of the users come from? List the three most frequently occurring countries (3)
- 4) Compute the descriptive statistics of score by traveler_type group (3)
- 5) On average, which group provided the highest scores and which group provided the lowest scores? (2)
- 6) Create a new data set (hotels) and calculate an average score (avg_score) for each hotel. Select the variables hotel_name, avg_score, pool, gym, tennis_court, spa, casino, free_internet, hotel_stars and nr_rooms (10)
- 7) Which hotel is best rated and which hotel is worst rated (based on the average score)? (2)
- 8) Calculate the correlation coefficient between the number of stars and the number of rooms (3)
- 9) What is the strength of this correlation? (very weak/weak/moderate/strong/very strong) (2)
- 10) Build a linear regression model where the average score is a dependent variable, and hotel_stars, pool, gym, spa and free_internet are independent variables (6)
- 11) What is the R-squared of this model? Based on the R-squared, does the model fit the data well? (4)
- 12) Create a pdf report (hotels.pdf) that contains the list of those hotels whose average score is greater or equal to 4. The list should only include the hotel name, the number of stars and the average score, and should be sorted by the latter (from highest to lowest). Use the Sapphire style and add a title ("The Best Hotels in Las Vegas") (5)
- 13) Choose a traveler_type group (e.g. Families) and create a new data set (selected) by selecting only the data where users belong to this group. Based on the selected data, create another data set (hotels2) and calculate an average score (avg_score) for each hotel. Here avg_score is an average score provided only by users from the chosen group. Select the variables hotel_name and avg_score (12)
- 14) Which hotels are best rated and which hotels are worst rated by the users who belong to the group of your choice? List all hotels with the highest average score and all hotels with the lowest average score (3)

PART 2: SHORT REPORT (20 marks)

Would you recommend SAS as software for business analytics to your future employer? Provide arguments to support your recommendation, but be brief and to the point, as your future employer may only have little time to read them. Avoid technical jargon and do not use references. The maximum permitted word length of this report is 500 words.

Assessment criteria for Part 1 and Part 2

Your work will be assessed according to the extent to which it demonstrates knowledge and understanding of key computer programming concepts for managing and analysing data, and SAS Base language, and how it is used to manage, analyse and report data, as well as an ability to read data stored in a popular format into SAS, store data in SAS libraries, manipulate, analyse, and report data using SAS, use your analytic skills in problem solving, and communicate technical ideas to non-specialists. In particular, you can get:

Part 1

- Up to **60 marks** for performing the tasks and answering the questions correctly
- Up to **20 marks** for comprehensive comments, and the structure and elegance of your program

Part 2

- Up to **20 marks** for a comprehensible, well-structured and literate written report that would be understandable to non-specialists

Nature of Assessment: This is a SUMMATIVE ASSESSMENT. See 'Weighting' section above for the percentage that this assignment counts towards your final module mark.

Word Limit: +/-10% either side of the word count (see above) is deemed to be acceptable. Any text that exceeds an additional 10% will not attract any marks. The relevant word count *includes* items such as cover page, executive summary, title page, table of contents, tables, figures, in-text citations and section headings, if used. The relevant word count *excludes* your list of references and any appendices at the end of your coursework submission.

You should always include the word count (from Microsoft Word, not Turnitin), at the end of your coursework submission, before your list of references.

Title/Cover Page: You must include a title/ cover page that includes: your Student ID, Module Code, Assignment Title, Word Count. This assignment will be marked anonymously, please ensure that your name does not appear on any part of your assignment.

References: You should use the Harvard style to reference your assignment. The library provide guidance on how to reference in the Harvard style and this is available from: <http://library.soton.ac.uk/sash/referencing>

Submission Deadline: Please note that the submission deadline for Southampton Business School is **16.00 for ALL assessments**.

Turnitin Submission: The assignment MUST be submitted electronically via Turnitin, which is accessed via the individual module on Blackboard. Further guidance on submitting assignments is available on the [Blackboard support pages](#).

It is important that you allow enough time prior to the submission deadline to ensure your submission is processed on time as **all** late submissions are subject to a late penalty. We would recommend you allow 30 minutes to upload your work and check the submission has been processed and is correct. Please make sure you submit to the correct assignment link.

Email submission receipts are not currently supported with Turnitin Feedback Studio LTI integrations, however following a submission, students are presented with a banner within their assignment dashboard that provides a link to download a submission receipt. You can also access your assignment dashboard at any time to download a copy of the submission receipt using the receipt icon. It is vital that you make a note of your **Submission ID (Digital Receipt Number)**. This is a unique receipt number for your submission and is proof of successful submission. You may be required to provide this number at a later date. We recommend that you take a screenshot of this page or note the number down on a piece of paper.

The last submission prior to the deadline will be treated as the final submission and will be the copy that is assessed by the marker.

It is your responsibility to ensure that the version received by the deadline is the final version, resubmissions after the deadline will not be accepted in any circumstances.

Important: If you have any problems during the submission process you should contact ServiceLine immediately by email at ServiceLine@soton.ac.uk or by phone on +44 (0)23 8059 5656.

Late Penalties: Further information on penalties for work submitted after the deadline can be found [here](#).

Special Considerations: If you believe that illness or other circumstances have adversely affected your academic performance, information regarding the regulations governing Special Considerations can be accessed via the Governance and Policies landing pages: [Regulations Governing Special Considerations \(including Deadline Extension Requests\) for all Taught Programmes and Taught Assessed Components of Research Degrees 2023-24 | University of Southampton](#)

Extension Requests: Extension requests along with supporting evidence should be submitted to the Student Office as soon as possible before the submission date. Information regarding the regulations governing extension requests can be accessed via the Governance and Policies landing pages:

[Regulations Governing Special Considerations \(including Deadline Extension Requests\) for all Taught Programmes and Taught Assessed Components of Research Degrees 2023-24 | University of Southampton](#)

Academic Conduct & Responsibility: Please note that you can access Academic Conduct & Responsibility Guidance for Students via the Quality Handbook:

http://www.southampton.ac.uk/quality/assessment/academic_integrity.page? Please note any suspected cases of Academic Responsibility Conduct will be notified to the Academic Conduct Officer for investigation.

In 2023/24, the most common reasons for a breach of the regulations governing [Academic Responsibility Conduct](#) on your programme were:

Breach	How to avoid
Plagiarism – <i>using the work, words, or ideas of another without proper acknowledgement. This includes citing work that you haven't read.</i>	<ul style="list-style-type: none"> - Always cite your sources. - Only cite what you have read and used. - "Direct quotes must be in quotation marks" with a page number if applicable. - If you read about the work of another in a source, say 'cited in' and cite where you read it (see here for more info).
Collusion – <i>Collaborating with others in an unauthorized way to produce academic work meant to be done independently.</i>	<ul style="list-style-type: none"> - Unless permitted in a group assignment, don't work with/alongside others. - Don't share your work with others. - Ensure you are clear on where the line is. If in doubt, don't do it.
External authorship – <i>Obtaining or attempting to obtain unauthorized input from another person or service for academic work, e.g GenAI</i>	<ul style="list-style-type: none"> - Ensure you are clear on if you are permitted to use GenAI. - Ensure your work is always your own. - Never send your work to others or upload it to a website. - Keep records of your work including notes, drafts, and reading.

Penalties for the above include mark reduction, resubmitting for a capped mark, or a '0' for the module.

If you are in any doubt, please ask.

Further learning and advice can be found in the [Academic Conduct & Responsibility Toolkit](#), and the Library [Website](#).

Feedback: Southampton Business School is committed to providing feedback within 4 weeks (University working days). Once the marks are released and you have received your feedback, you can meet with your Module Leader / Module Lecturer / Personal Academic Tutor to discuss the feedback within 4 weeks from the release of marks date. Any additional arrangements for feedback are listed in the Module Profile.

Student Support: Study skills and language support for Southampton Business School students is available at: <http://www.sbsaob.soton.ac.uk/study-skills-and-language-support/>.